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<120> DIAGNOSTIC TEST FOR WEST NILE VIRUS

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<210> 5
<211> 519
<212> DNA
<213> West Nile virus

<400> 5
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gctgcgtgcc cgaccatggg agaagctcac aatgacaaac gtgctgaccc agcttttgtg 240
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cacggaaact actccacaca ggttggagcc actcaggcag ggagattcag catcactcct 480
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```

<210> 6
<211> 171
<212> PRT
<213> West Nile virus

<400> 6

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Leu Glu Gly Val Ser Gly Ala Thr Trp Val Asp Leu Val Leu Glu Gly
 1               5                  10                  15

Asp Ser Cys Val Thr Ile Met Ser Lys Asp Lys Pro Thr Ile Asp Val
            20                  25                  30

Lys Met Met Asn Met Glu Ala Ala Asn Leu Ala Glu Val Arg Ser Tyr
        35                  40                  45

Cys Tyr Leu Ala Thr Val Ser Asp Leu Ser Thr Lys Ala Ala Cys Pro
    50                  55                  60

Thr Met Gly Glu Ala His Asn Asp Lys Arg Ala Asp Pro Ala Phe Val
65                  70                  75                  80

Cys Arg Gln Gly Val Val Asp Arg Gly Trp Gly Asn Gly Cys Gly Leu
                85                  90                  95

Phe Gly Lys Gly Ser Ile Asp Thr Cys Ala Lys Phe Ala Cys Ser Thr
            100                 105                 110

Lys Ala Ile Gly Arg Thr Ile Leu Lys Glu Asn Ile Lys Tyr Glu Val
            115                 120                 125

Ala Ile Phe Val His Gly Pro Thr Thr Val Glu Ser His Gly Asn Tyr
        130             135                 140

Ser Thr Gln Val Gly Ala Thr Gln Ala Gly Arg Phe Ser Ile Thr Pro
145                 150                 155                 160

Ala Ala Pro Ser Tyr Thr Leu Lys Leu Gly Glu
                165                 170
```

<210> 7
<211> 2715
<212> DNA
<213> West Nile virus

<400> 7

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aaacacgcca ggaaagaagg caatgtcact ggagggcatc cagtctctag gggcacagca  180
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<210> 8
<211> 905
<212> PRT
<213> West Nile virus

<400> 8
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Gly Gly Ala Lys Gly Arg Thr Leu Gly Glu Val Trp Lys Glu Arg Leu
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Asn Gln Met Thr Lys Glu Glu Phe Thr Arg Tyr Arg Lys Glu Ala Ile
            20                  25                  30

Ile Glu Val Asp Arg Ser Ala Ala Lys His Ala Arg Lys Glu Gly Asn
        35                  40                  45
```

Val Thr Gly Gly His Pro Val Ser Arg Gly Thr Ala Lys Leu Arg Trp
   50   55   60

Leu Val Glu Arg Arg Phe Leu Glu Pro Val Gly Lys Val Ile Asp Leu
 65   70   75   80

Gly Cys Gly Arg Gly Gly Trp Cys Tyr Tyr Met Ala Thr Gln Lys Arg
            85   90   95

Val Gln Glu Val Arg Gly Tyr Thr Lys Gly Gly Pro Gly His Glu Glu
      100   105   110

Pro Gln Leu Val Gln Ser Tyr Gly Trp Asn Ile Val Thr Met Lys Ser
      115   120   125

Gly Val Asp Val Phe Tyr Arg Pro Ser Glu Cys Cys Asp Thr Leu Leu
     130   135   140

Cys Asp Ile Gly Glu Ser Ser Ser Ser Ala Glu Val Glu Glu His Arg
145   150   155   160

Thr Ile Arg Val Leu Glu Met Val Glu Asp Trp Leu His Arg Gly Pro
          165   170   175

Arg Glu Phe Cys Val Lys Val Leu Cys Pro Tyr Met Pro Lys Val Ile
        180   185   190

Glu Lys Met Glu Leu Leu Gln Arg Arg Tyr Gly Gly Gly Leu Val Arg
      195   200   205

Asn Pro Leu Ser Arg Asn Ser Thr His Glu Met Tyr Trp Val Ser Arg
     210   215   220

Ala Ser Gly Asn Val Val His Ser Val Asn Met Thr Ser Gln Val Leu
225   230   235   240

Leu Gly Arg Met Glu Lys Arg Thr Trp Lys Gly Pro Gln Tyr Glu Glu
        245   250   255

Asp Val Asn Leu Gly Ser Gly Thr Arg Ala Val Gly Lys Pro Leu Leu
        260   265   270

Asn Ser Asp Thr Ser Lys Ile Lys Asn Arg Ile Glu Arg Leu Arg Arg
        275   280   285

Glu Tyr Ser Ser Thr Trp His His Asp Glu Asn His Pro Tyr Arg Thr
     290   295   300

Trp Asn Tyr His Gly Ser Tyr Asp Val Lys Pro Thr Gly Ser Ala Ser
305   310   315   320

Ser Leu Val Asn Gly Val Val Arg Leu Leu Ser Lys Pro Trp Asp Thr
        325   330   335

```
Ile Thr Asn Val Thr Thr Met Ala Met Thr Asp Thr Thr Pro Phe Gly
         340                 345                 350

Gln Gln Arg Val Phe Lys Glu Lys Val Asp Thr Lys Ala Pro Glu Pro
         355                 360                 365

Pro Glu Gly Val Lys Tyr Val Leu Asn Glu Thr Thr Asn Trp Leu Trp
    370                 375                 380

Ala Phe Leu Ala Arg Glu Lys Arg Pro Arg Met Cys Ser Arg Glu Glu
385                 390                 395                 400

Phe Ile Arg Lys Val Asn Ser Asn Ala Ala Leu Gly Ala Met Phe Glu
             405                 410                 415

Glu Gln Asn Gln Trp Arg Ser Ala Arg Glu Ala Val Glu Asp Pro Lys
         420                 425                 430

Phe Trp Glu Met Val Asp Glu Glu Arg Glu Ala His Leu Arg Gly Glu
         435                 440                 445

Cys His Thr Cys Ile Tyr Asn Met Met Gly Lys Arg Glu Lys Lys Pro
    450                 455                 460

Gly Glu Phe Gly Lys Ala Lys Gly Ser Arg Ala Ile Trp Phe Met Trp
465                 470                 475                 480

Leu Gly Ala Arg Phe Leu Glu Phe Glu Ala Leu Gly Phe Leu Asn Glu
             485                 490                 495

Asp His Trp Leu Gly Arg Lys Asn Ser Gly Gly Gly Val Glu Gly Leu
         500                 505                 510

Gly Leu Gln Lys Leu Gly Tyr Ile Leu Arg Glu Val Gly Thr Arg Pro
         515                 520                 525

Gly Gly Lys Ile Tyr Ala Asp Asp Thr Ala Gly Trp Asp Thr Arg Ile
    530                 535                 540

Thr Arg Ala Asp Leu Glu Asn Glu Ala Lys Val Leu Glu Leu Leu Asp
545                 550                 555                 560

Gly Glu His Arg Arg Leu Ala Arg Ala Ile Ile Glu Leu Thr Tyr Arg
             565                 570                 575

His Lys Val Val Lys Val Met Arg Pro Ala Ala Asp Gly Arg Thr Val
         580                 585                 590

Met Asp Val Ile Ser Arg Glu Asp Gln Arg Gly Ser Gly Gln Val Val
         595                 600                 605

Thr Tyr Ala Leu Asn Thr Phe Thr Asn Leu Ala Val Gln Leu Val Arg
    610                 615                 620
```

```
Met Met Glu Gly Glu Gly Val Ile Gly Pro Asp Asp Val Glu Lys Leu
625             630             635                     640

Thr Lys Gly Lys Gly Pro Lys Val Arg Thr Trp Leu Phe Glu Asn Gly
            645             650                 655

Glu Glu Arg Leu Ser Arg Met Ala Val Ser Gly Asp Asp Cys Val Val
            660             665             670

Lys Pro Leu Asp Asp Arg Phe Ala Thr Ser Leu His Phe Leu Asn Ala
        675             680             685

Met Ser Lys Val Arg Lys Asp Ile Gln Glu Trp Lys Pro Ser Thr Gly
    690             695             700

Trp Tyr Asp Trp Gln Gln Val Pro Phe Cys Ser Asn His Phe Thr Glu
705             710             715                     720

Leu Ile Met Lys Asp Gly Arg Thr Leu Val Val Pro Cys Arg Gly Gln
            725             730             735

Asp Glu Leu Val Gly Arg Ala Arg Ile Ser Pro Gly Ala Gly Trp Asn
            740             745             750

Val Arg Asp Thr Ala Cys Leu Ala Lys Ser Tyr Ala Gln Met Trp Leu
        755             760             765

Leu Leu Tyr Phe His Arg Arg Asp Leu Arg Leu Met Ala Asn Ala Ile
    770             775             780

Cys Ser Ala Val Pro Val Asn Trp Val Pro Thr Gly Arg Thr Thr Trp
785             790             795                     800

Ser Ile His Ala Gly Gly Glu Trp Met Thr Thr Glu Asp Met Leu Glu
            805             810                 815

Val Trp Asn Arg Val Trp Ile Glu Glu Asn Glu Trp Met Glu Asp Lys
        820             825             830

Thr Pro Val Glu Lys Trp Ser Asp Val Pro Tyr Ser Gly Lys Arg Glu
        835             840             845

Asp Ile Trp Cys Gly Ser Leu Ile Gly Thr Arg Ala Arg Ala Thr Trp
    850             855             860

Ala Glu Asn Ile Gln Val Ala Ile Asn Gln Val Arg Ala Ile Ile Gly
865             870             875                     880

Asp Glu Lys Tyr Val Asp Tyr Met Ser Ser Leu Lys Arg Tyr Glu Asp
            885             890             895

Thr Thr Leu Val Glu Asp Thr Val Leu
            900             905
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```
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<211> 2697
<212> DNA
<213> Dengue virus type 1

<400> 9
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<210> 10
<211> 899
<212> PRT
<213> Dengue virus type 1

<400> 10
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Leu Asn Gln Leu Ser Lys Ser Glu Phe Asn Thr Tyr Lys Arg Ser Gly
                20                  25                  30

Ile Ile Glu Val Asp Arg Ser Glu Ala Lys Glu Gly Leu Lys Arg Gly
            35                  40                  45

Glu Pro Thr Lys His Ala Val Ser Arg Gly Thr Ala Lys Leu Arg Trp
        50                  55                  60

Phe Val Glu Arg Asn Leu Val Lys Pro Glu Gly Lys Val Ile Asp Leu
 65                  70                  75                  80

Gly Cys Gly Arg Gly Gly Trp Ser Tyr Tyr Cys Ala Gly Leu Lys Lys
                85                  90                  95

Val Thr Glu Val Lys Gly Tyr Thr Lys Gly Gly Pro Gly His Glu Glu
                100                 105                 110

Pro Ile Pro Met Ala Thr Tyr Gly Trp Asn Leu Val Lys Leu Tyr Ser
        115                 120                 125

Gly Lys Asp Val Phe Phe Thr Pro Pro Glu Lys Cys Asp Thr Leu Leu
        130                 135                 140

Cys Asp Ile Gly Glu Ser Ser Pro Asn Pro Thr Ile Glu Glu Gly Arg
145                 150                 155                 160

Thr Leu Arg Val Leu Lys Met Val Glu Pro Trp Leu Arg Gly Asn Gln
                165                 170                 175

Phe Cys Ile Lys Ile Leu Asn Pro Tyr Met Pro Ser Val Val Glu Thr
            180                 185                 190

Leu Glu Gln Met Gln Arg Lys His Gly Gly Met Leu Val Arg Asn Pro
        195                 200                 205

Leu Ser Arg Asn Ser Thr His Glu Met Tyr Trp Val Ser Cys Gly Thr
        210                 215                 220

Gly Asn Ile Val Ser Ala Val Asn Met Thr Ser Arg Met Leu Leu Asn
225                 230                 235                 240

Arg Phe Thr Met Ala His Arg Lys Pro Thr Tyr Glu Arg Asp Val Asp
                245                 250                 255
```

```
Leu Gly Ala Gly Thr Arg His Val Ala Val Glu Pro Glu Val Ala Asn
        260                 265             270

Leu Asp Ile Ile Gly Gln Arg Ile Glu Asn Ile Lys Asn Gly His Lys
        275                 280             285

Ser Thr Trp His Tyr Asp Glu Asp Asn Pro Tyr Lys Thr Trp Ala Tyr
    290                 295             300

His Gly Ser Tyr Glu Val Lys Pro Ser Gly Ser Ala Ser Ser Met Val
305                 310             315             320

Asn Gly Val Val Arg Leu Leu Thr Lys Pro Trp Asp Val Ile Pro Met
                325             330             335

Val Thr Gln Ile Ala Met Thr Asp Thr Thr Pro Phe Gly Gln Gln Arg
            340             345             350

Val Phe Lys Glu Lys Val Asp Thr Arg Thr Pro Lys Ala Lys Arg Gly
        355             360             365

Thr Ala Gln Ile Met Glu Val Thr Ala Arg Trp Leu Trp Gly Phe Leu
    370             375             380

Ser Arg Asn Lys Lys Pro Arg Ile Cys Thr Arg Glu Glu Phe Thr Arg
385             390             395             400

Lys Val Arg Ser Asn Ala Ala Ile Gly Ala Val Phe Val Asp Glu Asn
            405             410             415

Gln Trp Asn Ser Ala Lys Glu Ala Val Glu Asp Glu Arg Phe Trp Asp
            420             425             430

Leu Val His Arg Glu Arg Glu Leu His Lys Gln Gly Lys Cys Ala Thr
    435             440             445

Cys Val Tyr Asn Met Met Gly Lys Arg Glu Lys Lys Leu Gly Glu Phe
    450             455             460

Gly Lys Ala Lys Gly Ser Arg Ala Ile Trp Tyr Met Trp Leu Gly Ala
465             470             475             480

Arg Phe Leu Glu Phe Glu Ala Leu Gly Phe Met Asn Glu Asp His Trp
            485             490             495

Phe Ser Arg Glu Asn Ser Leu Ser Gly Val Glu Gly Glu Gly Leu His
        500             505             510

Lys Leu Gly Tyr Ile Leu Arg Asp Ile Ser Lys Ile Pro Gly Gly Asn
        515             520             525

Met Tyr Ala Asp Asp Thr Ala Gly Trp Asp Thr Arg Ile Thr Glu Asp
    530             535             540
```

Asp Leu Gln Asn Glu Ala Lys Ile Thr Asp Ile Met Glu Pro Glu His
545   550   555   560

Ala Leu Leu Ala Thr Ser Ile Phe Lys Leu Thr Tyr Gln Asn Lys Val
                565   570   575

Val Arg Val Gln Arg Pro Ala Lys Asn Gly Thr Val Met Asp Val Ile
            580   585   590

Ser Arg Arg Asp Gln Arg Gly Ser Gly Gln Val Gly Thr Tyr Gly Leu
        595   600   605

Asn Thr Phe Thr Asn Met Glu Ala Gln Leu Ile Arg Gln Met Glu Ser
    610   615   620

Glu Gly Ile Phe Ser Pro Ser Glu Leu Glu Thr Pro Asn Leu Ala Glu
625   630   635   640

Arg Val Leu Asp Trp Leu Lys Lys His Gly Thr Glu Arg Leu Lys Arg
            645   650   655

Met Ala Ile Ser Gly Asp Asp Cys Val Val Lys Pro Ile Asp Asp Arg
            660   665   670

Phe Ala Thr Ala Leu Thr Ala Leu Asn Asp Met Gly Lys Val Arg Lys
        675   680   685

Asp Ile Pro Gln Trp Glu Pro Ser Lys Gly Trp Asn Asp Trp Gln Gln
    690   695   700

Val Pro Phe Cys Ser His His Phe His Gln Leu Ile Met Lys Asp Gly
705   710   715   720

Arg Glu Ile Val Val Pro Cys Arg Asn Gln Asp Glu Leu Val Gly Arg
            725   730   735

Ala Arg Val Ser Gln Gly Ala Gly Trp Ser Leu Arg Glu Thr Ala Cys
        740   745   750

Leu Gly Lys Ser Tyr Ala Gln Met Trp Gln Leu Met Tyr Phe His Arg
        755   760   765

Arg Asp Leu Arg Leu Ala Ala Asn Ala Ile Cys Ser Ala Val Pro Val
    770   775   780

Asp Trp Val Pro Thr Ser Arg Thr Thr Trp Ser Ile His Ala His His
785   790   795   800

Gln Trp Met Thr Thr Glu Asp Met Leu Ser Val Trp Asn Arg Val Trp
            805   810   815

Ile Glu Glu Asn Pro Trp Met Glu Asp Lys Thr His Val Ser Ser Trp
        820   825   830

```
Glu Asp Val Pro Tyr Leu Gly Lys Arg Glu Asp Arg Trp Cys Gly Ser
        835             840             845
```

```
Leu Ile Gly Leu Thr Ala Arg Ala Thr Trp Ala Thr Asn Ile Gln Val
        850             855             860
```

```
Ala Ile Asn Gln Val Arg Arg Leu Ile Gly Asn Glu Asn Tyr Leu Asp
865                 870             875             880
```

```
Phe Met Thr Ser Met Lys Arg Phe Lys Asn Glu Ser Asp Pro Glu Gly
                885             890             895
```

```
Ala Leu Trp
```

```
<210> 11
<211> 2701
<212> DNA
<213> Dengue virus type 2

<400> 11
ggaactggca acataggaga gacgcttgga gagaaatgga aaagccgatt gaacgcattg 60
gggaaaagtg aattccagat ctacaagaaa agtggaatcc aggaagtgga tagaacctta 120
gcaaaagaag gcattaaaag aggagaaacg gaccatcacg ctgtgtcgcg aggctcagca 180
aaactgagat ggttcgtcga gagaaatatg gtcacaccag aagggaaagt agtggacctc 240
ggttgcggca gaggaggctg gtcatactat tgtgggggac taaagaatgt aagagaagtc 300
aaaggcctga caaaaggagg accaggacat gaagaaccca tccccatgtc aacatatggg 360
tggaatctag tacgtcttca aagtggagtt gacgttttct tcactccgcc agaaaagtgt 420
gacacattgt tgtgtgacat aggggagtcg tcaccaaatc ccacggtaga agcaggacga 480
acactcagag tccttaactt agtggaaaat tggttgaaca caacaccca attttgcata 540
aaggttctca acccatacat gcctctagtc atagaaaaaa tggaagcact acaaggaaa 600
tatggaggag ccttagtgag gaatccactc tcacgaaact ccacacatga gatgtactgg 660
gtatccaatg cctccgggaa catagtgtca tcagtgaaca tgatttcaag gatgttgatc 720
aacagattca caatgagaca caagaaagcc acttacgagc cagatgtaga cctcggaagc 780
ggaacccgca acatcggaat tgaaagtgag ataccaaacc tagacataat cgggaaaaga 840
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aaaacgtggg cttaccatgg cagctatgaa acaaaacaaa ctggatcagc atcatccatg 960
gtgaacggag tggtcagact gctgacaaaa ccttgggacg tcgtccccat ggtgacacag 1020
atggcaatga cagacacgac tccatttgga caacagcgcg tttttaaaga aaaagtggac 1080
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ctttggaaag aactagggaa gaaaaagaca cctaggatgt gcactagaga agaattcaca 1200
agaaaggtga gaagcaatgc agccttgggg gccatattca ctgatgagaa caagtggaag 1260
tcggcacgtg aggctgttga agatagtagg ttttgggagc tggttgacaa ggaaaggaat 1320
ctccatcttg aaggaaagtg tgaaacatgt gtgtataaca tgatgggaaa aagagagaag 1380
aagctagggg agttcggcaa ggcaaaaggc agcagagcca tatggtacat gtggcttgga 1440
gcacgcttct tagagtttga agccctagga ttcttgaatg aagatcactg gttctccaga 1500
gagaactcct tgagtggagt ggaaggagaa gggctgcaca gctaggtta catttttaaga 1560
gacgtgagca agaaagaggg aggagcaatg tatgccgatg acaccgcagg atgggacaca 1620
agaatcacac tagaagacct aaaaaatgaa gaaatggtaa caaaccacat ggaaggagaa 1680
cacaagaaac tagccgaggc catttttcaaa ttaacgtacc aaaacaaggt ggtgcgtgtg 1740
caaagaccaa caccaagagg cacagtaatg gatatcatat cgagaagaga ccaaagaggt 1800
agtggacaag ttggtaccta tggactcaat actttcacca atatggaagc ccaactaatc 1860
```

```
agacagatgg agggagaagg agtcttcaaa agcattcagc acctgacagt cacagaagaa 1920
atcgccgtgc aaaactggtt agcaagagta gggcgcgaaa ggttatcaag aatggccatc 1980
agtggagatg attgtgttgt gaaacctta gatgacaggt tcgcaagcgc tttaacagct 2040
ctaaatgaca tgggaaaggt taggaaagac atacaacaat gggaaccttc aagaggatgg 2100
aacgattgga cacaagtgcc cttctgttca caccatttcc atgagttaat catgaaagac 2160
ggccgcgtac ttgtagttcc atgcagaaac caagatgaac tgattggtag agcccgaatt 2220
tcccaaggag ctgggtggtc tttgcgagag acggcctgtt ggggaagtc ctacgcccaa 2280
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catgaatgga tgacaacgga agacatgctg acagtctgga acagggtgtg gattcaagaa 2460
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aagaacatcc aaacagcaat aaatcaagtt agatccctta taggcaatga ggaatacaca 2640
gattacatgc catccatgaa aagattcaga agagaagagg aagaggcagg agtcctgtgg 2700
t                                                                  2701
```

<210> 12
<211> 900
<212> PRT
<213> Dengue virus type 2

<400> 12

```
Gly Thr Gly Asn Ile Gly Glu Thr Leu Gly Glu Lys Trp Lys Ser Arg
  1           5               10              15

Leu Asn Ala Leu Gly Lys Ser Glu Phe Gln Ile Tyr Lys Lys Ser Gly
           20              25              30

Ile Gln Glu Val Asp Arg Thr Leu Ala Lys Glu Gly Ile Lys Arg Gly
           35              40              45

Glu Thr Asp His His Ala Val Ser Arg Gly Ser Ala Lys Leu Arg Trp
      50              55              60

Phe Val Glu Arg Asn Met Val Thr Pro Glu Gly Lys Val Val Asp Leu
 65              70              75              80

Gly Cys Gly Arg Gly Gly Trp Ser Tyr Tyr Cys Gly Gly Leu Lys Asn
              85              90              95

Val Arg Glu Val Lys Gly Leu Thr Lys Gly Gly Pro Gly His Glu Glu
              100             105             110

Pro Ile Pro Met Ser Thr Tyr Gly Trp Asn Leu Val Arg Leu Gln Ser
           115             120             125

Gly Val Asp Val Phe Phe Thr Pro Pro Glu Lys Cys Asp Thr Leu Leu
           130             135             140

Cys Asp Ile Gly Glu Ser Ser Pro Asn Pro Thr Val Glu Ala Gly Arg
145             150             155             160
```

Thr Leu Arg Val Leu Asn Leu Val Glu Asn Trp Leu Asn Asn Asn Thr
165 170 175

Gln Phe Cys Ile Lys Val Leu Asn Pro Tyr Met Pro Ser Val Ile Glu
180 185 190

Lys Met Glu Ala Leu Gln Arg Lys Tyr Gly Gly Ala Leu Val Arg Asn
195 200 205

Pro Leu Ser Arg Asn Ser Thr His Glu Met Tyr Trp Val Ser Asn Ala
210 215 220

Ser Gly Asn Ile Val Ser Ser Val Asn Met Ile Ser Arg Met Leu Ile
225 230 235 240

Asn Arg Phe Thr Met Arg His Lys Lys Ala Thr Tyr Glu Pro Asp Val
245 250 255

Asp Leu Gly Ser Gly Thr Arg Asn Ile Gly Ile Glu Ser Glu Ile Pro
260 265 270

Asn Leu Asp Ile Ile Gly Lys Arg Ile Glu Lys Ile Lys Gln Glu His
275 280 285

Glu Thr Ser Trp His Tyr Asp Gln Asp His Pro Tyr Lys Thr Trp Ala
290 295 300

Tyr His Gly Ser Tyr Glu Thr Lys Gln Thr Gly Ser Ala Ser Ser Met
305 310 315 320

Val Asn Gly Val Val Arg Leu Leu Thr Lys Pro Trp Asp Val Val Pro
325 330 335

Met Val Thr Gln Met Ala Met Thr Asp Thr Thr Pro Phe Gly Gln Gln
340 345 350

Arg Val Phe Lys Glu Lys Val Asp Thr Arg Thr Gln Glu Pro Lys Glu
355 360 365

Gly Thr Lys Lys Leu Met Lys Ile Thr Ala Glu Trp Leu Trp Lys Glu
370 375 380

Leu Gly Lys Lys Lys Thr Pro Arg Met Cys Thr Arg Glu Glu Phe Thr
385 390 395 400

Arg Lys Val Arg Ser Asn Ala Ala Leu Gly Ala Ile Phe Thr Asp Glu
405 410 415

Asn Lys Trp Lys Ser Ala Arg Glu Ala Val Glu Asp Ser Arg Phe Trp
420 425 430

Glu Leu Val Asp Lys Glu Arg Asn Leu His Leu Glu Gly Lys Cys Glu
435 440 445

```
Thr Cys Val Tyr Asn Met Met Gly Lys Arg Glu Lys Lys Leu Gly Glu
    450             455             460

Phe Gly Lys Ala Lys Gly Ser Arg Ala Ile Trp Tyr Met Trp Leu Gly
465             470             475                 480

Ala Arg Phe Leu Glu Phe Glu Ala Leu Gly Phe Leu Asn Glu Asp His
            485             490             495

Trp Phe Ser Arg Glu Asn Ser Leu Ser Gly Val Glu Gly Glu Gly Leu
            500             505             510

His Lys Leu Gly Tyr Ile Leu Arg Asp Val Ser Lys Lys Glu Gly Gly
        515             520             525

Ala Met Tyr Ala Asp Asp Thr Ala Gly Trp Asp Thr Arg Ile Thr Leu
    530             535             540

Glu Asp Leu Lys Asn Glu Glu Met Val Thr Asn His Met Glu Gly Glu
545             550             555             560

His Lys Lys Leu Ala Glu Ala Ile Phe Lys Leu Thr Tyr Gln Asn Lys
            565             570             575

Val Val Arg Val Gln Arg Pro Thr Pro Arg Gly Thr Val Met Asp Ile
        580             585             590

Ile Ser Arg Arg Asp Gln Arg Gly Ser Gly Gln Val Gly Thr Tyr Gly
    595             600             605

Leu Asn Thr Phe Thr Asn Met Glu Ala Gln Leu Ile Arg Gln Met Glu
    610             615             620

Gly Glu Gly Val Phe Lys Ser Ile Gln His Leu Thr Val Thr Glu Glu
625             630             635             640

Ile Ala Val Gln Asn Trp Leu Ala Arg Val Gly Arg Glu Arg Leu Ser
            645             650             655

Arg Met Ala Ile Ser Gly Asp Asp Cys Val Val Lys Pro Leu Asp Asp
            660             665             670

Arg Phe Ala Ser Ala Leu Thr Ala Leu Asn Asp Met Gly Lys Val Arg
        675             680             685

Lys Asp Ile Gln Gln Trp Glu Pro Ser Arg Gly Trp Asn Asp Trp Thr
    690             695             700

Gln Val Pro Phe Cys Ser His His Phe His Glu Leu Ile Met Lys Asp
705             710             715             720

Gly Arg Val Leu Val Val Pro Cys Arg Asn Gln Asp Glu Leu Ile Gly
            725             730             735
```

Arg Ala Arg Ile Ser Gln Gly Ala Gly Trp Ser Leu Arg Glu Thr Ala
            740   745   750

Cys Leu Gly Lys Ser Tyr Ala Gln Met Trp Ser Leu Met Tyr Phe His
        755   760   765

Arg Arg Asp Leu Arg Leu Ala Ala Asn Ala Ile Cys Ser Ala Val Pro
    770   775   780

Ser His Trp Val Pro Thr Ser Arg Thr Thr Trp Ser Ile His Ala Lys
785   790   795   800

His Glu Trp Met Thr Thr Glu Asp Met Leu Thr Val Trp Asn Arg Val
            805   810   815

Trp Ile Gln Glu Asn Pro Trp Met Glu Asp Lys Thr Pro Val Glu Ser
        820   825   830

Trp Glu Glu Ile Pro Tyr Leu Gly Lys Arg Glu Asp Gln Trp Cys Gly
        835   840   845

Ser Leu Ile Gly Leu Thr Ser Arg Ala Thr Trp Ala Lys Asn Ile Gln
    850   855   860

Thr Ala Ile Asn Gln Val Arg Ser Leu Ile Gly Asn Glu Glu Tyr Thr
865   870   875   880

Asp Tyr Met Pro Ser Met Lys Arg Phe Arg Arg Glu Glu Glu Glu Ala
            885   890   895

Gly Val Leu Trp
            900

<210> 13
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 13
Cys Arg Val Lys Met Glu Lys Leu Gln Leu Lys Gly Thr Thr
  1   5   10

<210> 14
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 14
Cys Gln Leu Leu Met Arg Glu Val Lys Thr Gly Thr Lys Lys
  1   5   10

<210> 15
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 15
Cys Ser Thr Lys Ala Ile Gly Arg Thr Ile Leu Lys Glu Asn Ile Lys
  1   5   10   15

Tyr Glu Val

<210> 16
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      primer

<400> 16
gactgaagag ggcaatgttg agc   23

<210> 17
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      primer

<400> 17
gcaataactg cggacytctg c   21

<210> 18
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      primer

<400> 18
gaattcttca actgccttgg aatgagc   27

<210> 19
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      primer

<400> 19
ctgcagttat ttgccaatgc tgcttcc   27

<210> 20
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      6xHis tag

<400> 20
His His His His His His
  1   5